

PATHFINDER NWR
NARRATIVE REPORT - 1967



Fall weather was perfect for performing some habitat improvement work at Soda Lakes. This dragline was put to work on cleaning out four springs around the largest lake in the group. Refuge slide.

N A R R A T I V E R E P O R T

Pathfinder National Wildlife Refuge

January through December
1967

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UNITED STATES DEPARTMENT OF THE INTERIOR
Fish and Wildlife Service
Bureau of Sport Fisheries and Wildlife
Laramie, Wyoming

NARRATIVE REPORT
1968

Pathfinder National Wildlife Refuge

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I. GENERAL

A. Weather Conditions

The following table presents a summary of weather data for the Pathfinder Refuge as obtained from the Weather Bureau in Cheyenne. The weather station nearest the refuge is located at the Pathfinder Dam. Weather data cannot be obtained directly from this source, however, so it is supplied by the Weather Bureau. Unfortunately, our requests for the absolute high and low temperatures for each month cannot be supplied and only the average maximums and minimums are available for our use. Also, no snowfall records are furnished to us.

Month	Precipitation		Temperature (averages)		
	This Month	Normal	Max.	Min.	Mean
January	.54	.29	31.9M	16.0M	24.0M
February	.54	.38	37.1M	15.8M	26.5M
March	.33	.63	48.2M	26.7M	37.5M
April	1.10	1.11	54.5M	30.3M	42.4M
May	1.43	1.59	59.1	35.5	47.3
June	3.16	1.19	69.7	45.0	57.4
July	.90	1.03	83.6	53.9	68.8
August	.09	.88	84.8	53.4	69.1
September	1.43	.83	73.4	47.7	60.6
October	1.03	.86	62.2M	37.2M	49.7
November	.68	.49	43.8	23.3	33.6
December	.83	.30	26.6	7.2	16.9
Total	12.06	9.58			

M One or more days of record missing.

Until the month of June, snow and rainfall were comparable with the average year. Then, for a month, showers and thunderstorms were an every day occurrence. This, coupled with several fall and winter snowstorms, brought the year's total precipitation to almost two-and-a-half inches above normal.

For the most part, spring was characterized by warmer than usual temperatures and strong winds, both night and day. Pathfinder

Refuge lies in the direct path of the Chinook winds that descend along the Rocky Mountains. Strong winds are very likely to occur whenever there is a warming or cooling trend, and especially in the spring. Casper, about 50 miles from the refuge, is known for its windy weather and has an average wind velocity of nearly 18 miles per hour. The high winds, together with light precipitation, are characteristic of most of the Wyoming plains country.

Summer temperatures stayed on the mild side this year, and were not thought to have reached above 100 degrees as they sometimes do. Fall weather was dry and quite warm, permitting work to be carried on until winter struck with a blast in early November.

Snowfall had reached a depth of about one foot over much of the refuge by the end of December, with much drifting in the unsheltered areas. It had also become crusted over, making driving and walking through it very difficult.

B. Habitat Conditions

1. Water

Good flows were maintained most of the year in the North Platte and Sweetwater River, major suppliers for the Pathfinder Reservoir. Instead of the normal rise-fall-rise usually seen in the reservoir level during the year, the Bureau of Reclamation brought the level up steadily throughout the year and it was more than 34 feet higher at the end of 1967 than it was when the year began. The following is a record of the surface elevations of Pathfinder Reservoir at the first of each month throughout the year:

Pathfinder Reservoir Elevations 1967

January 1	5,767.24
February 1	5,776.69
March 1	5,787.86
April 1	5,793.26
May 1	5,790.30
June 1	5,790.09
July 1	5,795.70
August 1	5,797.30
September 1	5,794.26
October 1	5,794.96
November 1	5,797.40
December 1	5,797.32
December 31	5,801.94

At the time of this writing the reservoir inundates the Platte River portion of the Deweese Creek unit and reaches the bend

of the Sweetwater River in the center of Section 6 west of Bishop Point. These upper reaches of the reservoir are favored nesting and feeding areas for waterfowl. In the case of the Platte River, the junction of the river and the reservoir usually remains ice-free during the winter and is one of the few water areas open to waterfowl use at that time.

Runoff on the Sage Creek and Deweese Creek drainages appeared to have been lighter this year than usual. The Deweese Creek ponds were quite low but some tunneling in the series of small dams by muskrats was partly responsible.

The Soda Lakes--shallow alkaline lakes north of the Sweetwater River--began to dry up in August and were the lowest this fall that this writer had seen them in four years. The lakes are dependent upon underground drainage and springs for water. The lower these lakes become, the more concentrated the minerals become until the water appears a murky white and the odor is quite offensive. Still, a number of ducks use the lakes, especially near the springs which are situated around the larger lake, sometimes referred to as Steamboat Lake.

2. Food and Cover

The usual small amounts of aquatic plant food were available in the rivers, whereas the rising reservoir seemed to favor the production of pondweeds and other plant species along the margins of the water. For example, a significant amount of sago pondweed, Potamogeton pectinatus, was noted in the waters of Goose Bay this summer. This is an unusual occurrence since the reservoir is usually dropping rapidly at this time of year.

Goose browse, in the forms of sedges, grasses, and clover, was quite abundant along the shores of the reservoir and on the river banks. This was an improvement over the normal situation whereby the reservoir drops rapidly during the summer, and the geese are required to feed a long distance from the water during the moult.

Although the waters of the Soda Lakes are too alkaline to grow plant food, they still seemed to attract quite a few ducks and hundreds of avocets and phalaropes. After observing them more closely this summer and fall, it was discovered that many of the birds were feeding, to a large extent, upon the swarms of shore-flies (Family Ephydriidae) that literally blackened the surface of the water around the perimeters of the lakes. Specimens of the flies were identified by a University of Wyoming

entomologist who stated that the insects were probably of quite some importance as bird food. This would appear to be their only economic importance to man.

The shoreline cover around the Soda Lakes was very good this year and the grasses in the recently fenced unit showed signs of good response to elimination of livestock. Only a few head of trespass cattle and small herds of antelope grazed on the 1,200 acres of low alkaline bottomlands this year.

The excellent June rains turned the rangelands into lush green pastures for most of the summer. The flats north of the Sweetwater River were again covered with yellow sweetclover, much of which grew to a height of five to six feet. Had this clover been mowed when it was about two or three feet tall, it would have made fair to good hay. In this year of plentiful grasses and native hay, however, no market could be found for the clover. Inquiries since then have turned up one or two ranchers who probably would be interested if such a clover crop occurs again.

Little nesting was thought to have occurred in the clover along the river because it grew so tall and rank (Fig. 1.) If some of the clover could be sold as hay or otherwise removed, strips could be left for nesting cover and much better nesting use would likely take place.

Several old oxbows of the Sweetwater River held some water from spring flooding and furnished better than usual nesting cover this year. It appears that trampling by cattle and horses has been detrimental to nesting cover in these oxbows since sufficient new growth of bulrushes is not available until after the peak of the nesting season. Plans were made to fence one of these oxbows, about 15 acres in size, from livestock use as an experimental area. The fence construction was just begun, however, when snow and freezing weather forced a halt to the project. (Fig. 2.)

Consideration is also being given to the construction of some small dams across the waterways in these old oxbows and at the same time deepening the channels in places. It may be that the soil is too sandy for use in dams, though, and would not hold back pond water.



Fig. 1. Yellow sweetclover grew tall and rank along the Sweetwater River again this year. Should a similar growth occur again next year, part of it may be sold for hay, leaving strips for wildlife food and cover. R-57 #5.



Fig. 2. Fence construction around a 15-acre marsh along the Sweetwater River was halted with the arrival of winter. The fence was to protect the old marsh vegetation for use by early nesting ducks. R-57 #7.



Fig. 3. Several of the old river oxbows along the Sweetwater, offered nesting cover of both softstem and three-square bulrushes. Broods of ducks were often found where water still remained after earlier flooding. Refuge slide.



Fig. 4. Juncus balticus, grasses, and rushes offered good nesting cover along the shores of some of the Soda Lakes this year. This was the second year that grazing had been eliminated from the unit. Refuge slide.



Fig. 5. A stand of three-square bulrush made good cover for duck broods and other water birds along Goose Bay. The bay was again zoned off from public use after mid-July to prevent harassment by boaters and fishermen.

II. WILDLIFE

A. Migratory Birds

1. Ducks

Waterfowl inventories for the Pathfinder Refuge have always been based, of necessity, upon infrequent surveys of the entire refuge, coupled with a variable number of spot checks and occasional reports from State wardens and other qualified personnel. Refuge personnel, of which there is generally only one qualified to make the counts, are stationed 150 miles from Pathfinder and the refuge, itself, cannot be covered by ground in less than two days.

Unfortunately, waterfowl surveys at Pathfinder during the first part of 1967 were few and far between. Other work took precedence and the refuge manager was away for several weeks during the spring. Later, when a number of work projects got underway on the refuge, more regular counts were achieved.

The weekly inventories, then, are based upon the best information available.

Apparently, the filling reservoir attracted a greater number of ducks to the refuge this year and duck use-days climbed for the third year in a row. There was an estimated seven per cent increase in overall use-days over last year, with the most significant increase recorded for the dabblers. Table 1 shows a comparison of duck use by species.

Table 1. Duck use of Pathfinder Refuge - 1967

: Species :	: Peak Number :	: Use Days :	: Production :
: Mallard :	: 400 :	: 53,335 :	: 90 :
: Gadwall :	: 130 :	: 13,772 :	: 35 :
: American widgeon :	: 180 :	: 8,648 :	: 0 :
: Pintail :	: 685 :	: 70,796 :	: 230 :
: Green-winged teal :	: 200 :	: 19,180 :	: 35 :
: Blue-winged teal :	: 60 :	: 3,199 :	: 20 :
: Cinnamon teal :	: 30 :	: 1,288 :	: 0 :
: Shoveler :	: 320 :	: 16,948 :	: 50 :
: Redhead :	: 600 :	: 23,030 :	: 0 :
: Canvasback :	: 1 :	: 21 :	: 0 :
: Lesser scaup :	: 60 :	: 4,028 :	: 0 :
: Common goldeneye :	: 100 :	: 11,392 :	: 0 :
: Bufflehead :	: 12 :	: 504 :	: 0 :
: Ruddy duck :	: 2 :	: 28 :	: 0 :
: Common merganser :	: 120 :	: 7,295 :	: 20 :
: Totals :	:	: 233,464 :	: 480 :

The main use by diving ducks occurs during the spring migration. Reports indicated that redheads again used the backwaters of the reservoir in good numbers. The main use by the dabblers came generally during the summer and fall months, and the most use days were recorded during the summer, indicating that this is not always a chiefly migration refuge.

Duck production was about the same as in 1966, with pintails the major nester on the refuge. Of the total 480 young produced, 230 were pintails. (See Table 1.) The most important production unit was again the Soda Lakes area, while the Sweetwater River and its Horse Creek tributary were second.

Only one intensive brood count was made. This took place over a two-day period, July 21 and 22, and included a thorough survey of the Sweetwater River by canoe. (Fig. 6.) This stretch of river is about five miles long and the use of the canoe, for the first time this year, greatly simplified and improved the count. In addition to the intensive count, several spot checks were made of the more important nesting areas.



Fig. 6. Brood counts on the Sweetwater River and on the Hutton Lake Refuge lakes were greatly facilitated by this newly acquired 17-foot Gruman canoe and 5-HP Evinrude motor.

2. Geese

There was, again, year-round use of the refuge by Canada geese, although this was not considered to be by a resident flock. Banding records indicate that some of the refuge geese winter in the Imperial Valley of California. The refuge wintering flock, however, numbered about 160 geese, the peak number recorded during the year.

Goose use declined by 3,329 use-days from last year's use. This about equaled use in 1965. Seven broods were observed this year with a total of 37 young. This is an increase of two broods and seven young over last year, but is considerably lower than the 102 young recorded in 1958.

All of the broods were observed on the backwaters of the reservoir on the Sweetwater Arm, but at least three of the broods were known to have come from the Soda Lakes unit.

Seven new tub nests were installed around Steamboat Lake, the largest in the series of Soda Lakes, in March, but apparently they were installed too late for nesting use this year. A wooden nesting structure which had toppled over in the middle of Steamboat Lake was set up again but the wind and ice action soon caused it to upset again. Another type of artificial nesting structure was tried but was also unsuccessful. This was a nest built of baled hay on a wooden raft. The raft nest would have been accepted by the geese, probably, but the strong winds experienced this spring managed to pull up the anchor from the soft mud lake bottom and the raft piled up on shore.



Fig. 7. Seven tub nests were installed for geese around Steamboat Lake. This round tub was painted with dull brown paint to reduce the glare, while the square tub below was not painted. None of the tub nests was used this year. R-50 #14.



Fig. 8. These tub nests are slightly modified versions of the type used for Branta canadensis maxima on the Trimble Wildlife Area, Missouri with good success. (Journal of Wildlife Management, Vol. 30, No. 4, October 1966.) R-50 #8.

3. Swans

No swans were noted on the refuge this year.

4. Coots

Unlike the Hutton Lake Refuge, the Pathfinder does not usually attract coots. Why this is so has not been determined. However, occasional use is recorded on the refuge from time to time. This year, 5,404 coot use-days were recorded, the largest number present at one time being 230. Scattered small flocks were observed over most of the refuge after about mid-July. One adult with a single young was noted along the Sweetwater River on July 21. The largest group, 150 birds, was counted on the Sweetwater. On this same day, October 13, 80 more were at Soda Lakes. The last flock, 50 coots, was observed at Soda Lakes on November 3.

5. Other Water Birds

The most notable other water birds were, again, the hundreds of Wilson's phalaropes and American avocets which congregated on the Soda Lakes. An estimated 2,000 phalaropes and 750 avocets were noted using the lakes on August 22. A large supply of insect life is found in these waters which is probably the primary reason so many shore and wading birds are found there.

The sighting of two white-faced ibises at Soda Lakes on May 29 was a refuge first for this species. Few observations of ibises have been made in Wyoming. It is interesting to note that neither State nor Federal protection is afforded them in this State.

A small group of long-billed curlews continues to spend the summer along the Sweetwater River and Horse Creek. Though they are thought to nest here, no nests or young have been seen.

6. Mourning Doves

Mourning doves were not plentiful on the refuge this year. No more than 50 were noted at one time.

B. Upland Game Birds

The refuge population of sage grouse is an estimated 100 birds. A short three-day season was permitted on the Carbon and Natrona

Counties open areas surrounding the refuge, with a three-bird bag and possession limit. Some of the off-and-on refuge population was probably harvested during the season.

The major part of the population is found along the Sweetwater River and on the Deweese Creek unit. No grouse have been noted on the Soda Lakes unit for several years.

C. Big Game Animals

Several of the State's antelope herds were further decimated by late season snowstorms and, perhaps, some overharvest by the gun. To compensate, many of the area seasons were shortened this year, including those in which Pathfinder lies. The refuge population was an estimated 1,000 antelope before the seasons opened and the year-end population was an estimated 850. These are the peak numbers recorded and the herds on the refuge are not always that large since they tend to move on and off the refuge. These numbers are down slightly from recent years but the herds appear to be in good condition and their range conditions are favorable.

The lush growth of sweetclover along the Sweetwater River this year was favored by both antelope and mule deer. When the clover was but two or three feet tall, it was not uncommon to see herds of antelope numbering from 400 to 500 animals feeding there. It grew to heights of five to six feet later on, however, and was then of little value as food. It was then that the clover became popular with the mule deer which used it both for food and cover. Two small herds, one of five bucks and the other of eleven does and fawns, were observed many times there during the summer.

The mule deer population on the entire refuge was estimated to be 70 animals at year's end. Most of these inhabit the rocky hills and low mountains along the Sweetwater River.

D. Fur Animals, Predators, Rodents, and Other Mammals

No important changes in the species listed on NR-4 were noted.

E. Hawks, Eagles, Owls, Crows, and Magpies

The usual numbers of these species were present, with one concentration of five bald eagles and two golden eagles recorded on the Sweetwater unit on March 30.

Burrowing owls, which are included in the list of rare species, took up residency in the prairie dog villages along Horse Creek

again. Eight of these owls were counted, several of which commonly perched on top of fence posts.

A gyrfalcon was identified as it sat upon the banks of the Sweetwater River feeding upon what appeared to be a duck. This is a rare observation and a first for the refuge.

F. Other Birds

Horned larks and lark buntings were numerous, as usual, over most of the refuge.

Northern waterthrushes were identified as they flitted around the newly dug springs at Soda Lakes.

A colony of white-throated swifts and cliff swallows are a pleasure to watch in the Narrows of the Pathfinder Reservoir.

G. Fish

Much publicity was given the famed "Miracle Mile" of the North Platte River between Kortes Dam and the Pathfinder Reservoir. Although the "Mile" is above the refuge, the two and one-half miles of river on the refuge are also quite heavily fished, and they would probably receive more attention if they were more readily accessible.

The Pathfinder Reservoir often falls in disfavor with the fishermen because of the numerous suckers and carp which interfere with the trout fishing. Early spring and fall fishing generally pays off, though, with many strings of "lunker" rainbows and browns taken. The Wyoming Game and Fish Department planted 500,000 fingerling rainbows in the reservoir this year.

Several attempts at stocking the Sweetwater River with trout have failed due, apparently, to silt in the water and an inadequate food supply. This leaves the river for the waterfowl--not a bad arrangement!

A tremendous number of carp spawned along the backwaters of the reservoir on the Sweetwater this year, and the flooded grasses and rushes seemed filled with them when the area was visited on June 22. It appeared that many of them would weigh three or four pounds.

H. Reptiles

Two prairie rattlesnakes were seen and disposed of during the summer. One of these gave Temporary Maintenance man Dave Heffernan

quite a start when it struck the heel of his boot while he was digging a hole for a sign post near Sage Creek. He reported that when he "came down" he managed to bring his post hole digger squarely on target.

I. Disease

None noted.

III. REFUGE DEVELOPMENT AND MAINTENANCE

A. Physical Development

Seven new tub nests were installed around Steamboat Lake and one was built on a raft in this same lake during March.

A dragline and operator were hired to excavate some springs at four sites around Steamboat Lake during the fall. An equal amount of excavation work remains to be done, as well as the leveling of the spoil piles and some reseeding of grass. It was apparent that the springs had run quite a bit of water in past years but had become clogged with debris and vegetation. Wayne Sanford, neighboring rancher, stated that wild horses formerly kept the springs flowing by pawing them out each year. The springs are badly needed to maintain Steamboat Lake and to help freshen the lake water. They also receive much use by waterfowl as loafing areas.

The refuge farm tractor and front end loader were used to dig a trash pit near the Buzzard Ranch road and just north of the Sweetwater River. New trash barrels were installed at a campground on the south side of the river which is used extensively by hunters each fall. Weeds and tall grass were mowed on the campground prior to the hunting seasons.

Work was begun on fencing the trash pit and a fifteen-acre marsh unit along the Sweetwater River when we lost our temporary hired help, and shortly thereafter winter set in.



Fig. 9. A dragline was put to work cleaning out some springs at Soda Lakes. This is one of two springs opened up on the north side of the lake. R-53 #4.



Fig. 10. This spring was found at the base of a hill on the west side of the lake and was channeled down to the small marsh along the lake. The spoil piles will be leveled at a later date and the bare ground reseeded. Refuge slide.

B. Maintenance

Water management consisted of regulating the gates in the dams on Horse Creek and Deweese Creek to fill the small ponds.

The twenty-five trash cans on the Sage Creek-Platte unit were emptied in June, July, August and October.

The buoy lines and accompanying signs which designate the refuge closed areas at Goose Bay and the Sweetwater River during the waterfowl production season were set out on July 12 and removed on August 31.

The refuge house trailer, stationed at Alcova, was towed to Casper for a coat of new paint to the exterior and several repair jobs on the inside.

Sign work consisted of posting the three outlying refuge units with "Hunting Permitted" signs prior to the early teal and regular waterfowl seasons and re-posting 1.5 miles of boundary at Soda Lakes and .5 mile near Sage Creek.

C. Other Work

After several meetings, telephone calls, and a sizable bit of correspondence, we finally dissuaded the Wyoming Highway Department from re-routing State Highway 220 through the refuge. Three routes had been staked across the refuge, one of which just catches the northwest corner of the Soda Lakes unit. Since only about 1.3 acres are affected by this latter route, it will probably receive approval from the BSF&W and the BLM, the two land agencies involved.

The Wildlife Inventory Plan for the refuge was completed and approved.

D. Plantings

None.

E. Collections and Receipts

None.

F. Control of Vegetation

More than a section of land adjacent to the Sweetwater River was mowed in October to remove new willow growth. This is a favored

goose feeding area. It is hoped that the reservoir will flood the area next spring and drown out the willows.

Weeds were mowed in the hunter camp ground and on several dams.

G. Planned Burning

None.

H. Fires

None.

IV. RESOURCE MANAGEMENT

A. Grazing

According to a memorandum agreement between the Bureau of Land Management, the Bureau of Reclamation, and the Bureau of Sport Fisheries and Wildlife, drawn up in 1965, the BLM now administers all of the grazing at Pathfinder. This is done with the recommendations of the other two agencies and it has helped to eliminate some of the confusion that existed when all three agencies were handling grazing permits.

This is the second year that grazing has been excluded from the Soda Lakes unit. If the desired improved nesting cover is obtained by the fall of 1968, some limited grazing may be permitted on the unit next winter.



Fig. 11. The Sanford Ranch puts as many as 1,000 head of cattle on the refuge lands which lie on both sides of the Sweetwater River. Few fences separate the refuge from private and other public lands making it difficult to restrict the numbers. Heaviest use generally occurs along the river which often causes a shortage in nesting cover. The refuge is now attempting to get the BLM, which administers the grazing, to prepare a Grazing Plan for this part of the refuge. R-57 #14.

B. Other Uses

None.

V. FIELD INVESTIGATIONS AND APPLIED RESEARCH

Nothing to report.

VI. PUBLIC RELATIONS

A. Recreational Uses

Public uses of the refuge are nearly identical to the uses of the rest of the Pathfinder Reservoir, that is, fishing, hunting, boating, picnicking, camping and sightseeing.

There seemed to be no appreciable change in the amount of use on any of the areas. The reader is referred to NR-6 for an analysis of public use.

B. Refuge Visitors

Please refer to the Hutton Lake Refuge narrative report.

C. Refuge Participation

Day to day encounters with the public while on patrol or while carrying out other work made up the major part of public relations work for the Bureau at this refuge. Numerous fishermen and hunters were checked which gave occasion to answer questions about the refuge and other Bureau work. Of course, we are usually considered to be Wyoming game wardens, as well, so it was necessary to be informed about such things as current State Game and Fish regulations.

A slide talk was presented to the Laramie Lions Club on August 22, during which the Pathfinder was discussed.

Five area newspapers were sent notices about the Pathfinder closed areas and the areas opened to hunting during the several seasons.

D. Hunting

1. Antelope

The entire refuge was again opened to antelope hunting in conjunction with the State seasons for the two areas in which the refuge lies. It was estimated that 150 antelope were taken by hunters from the numbers that use the refuge on an on-and-off basis. Perhaps 50 of these were taken on the refuge. This

estimate is based on only a few known kills, however, since it was impossible to spend much time on checking hunters. State wardens continue to do most of the hunter checking on the refuge.

2. Deer

The entire refuge was also opened again to deer hunting. This is not a very popular deer hunting area, however, and hunting pressure was light. The refuge also lies within two State deer areas and so was opened to correspond with the State seasons. An estimated five deer were taken on the refuge this year.

3. Waterfowl

For the third year since its initiation in 1965, the refuges furnished open areas for waterfowl hunting. The three outlying units--Sage Creek-Platte, Deweese Creek, and Goose Bay--were opened to hunting during the early teal season and during the regular waterfowl season.

Again, it appeared that use by waterfowl hunters of the Deweese Creek and Goose Bay units was almost nil. These areas, of course, are quite hard to reach. Deweese Creek, for instance, can be reached by four-wheel drive vehicle or by crossing the Platte River and then walking up its length to where the ponds offer some hunting.

One weekend was spent covering the Platte open area during the early teal season and, although small flocks of teal were seen, they remained unmolested as no hunters sought them.

The demand for hunting waterfowl on the refuge during the regular season was mainly from goose hunters. It is estimated that about 75 ducks and 20 geese were taken on the refuge, the same as last year. Only six duck or goose hunters were checked on the refuge during the season. While patrolling the area, however, several hunters were checked on the Platte, both above and below the refuge. Hunter success appeared to be about the same in all areas. No violations were noted.

E. Violations

No game law violations were noted this year. Shooting of signs and litter barrels continues to be a problem. Unfortunately, no apprehensions were made.

E. Safety

Please refer to the Hutton Lake narrative report.

VII. OTHER ITEMS

A. Photos

The photos included in this report were taken by the refuge manager.

B. Other Items

The newspaper articles and a hunting area map are appended to the back of this report.

Submitted by:

February 8, 1968

Lee Marlatt

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Refuge Manager

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W. Schmitt

Assistant Regional Director-Operations

APR 23 1968

Pathfinder Areas Are Temporarily Closed to Uses

Two portions of the Pathfinder Reservoir which lie within the Pathfinder National Wildlife Refuge have been temporarily closed to fishing and other public use. Goose Bay on the west side of the reservoir and the upper portion of the Sweetwater River within the refuge have been closed to public use to provide protection for waterfowl young and moulting adult ducks and geese, it was announced by the Bureau of Sport Fisheries and Wildlife.

The two closed areas are designated by buoy lines and signs.

The closure is made each year from mid-July until Sept. 1 so that some sanctuary is provided for waterfowl during the critical flightless stages. The remainder of the reservoir within the refuge remains open to public use.

Laramie Daily Boomerang
July 23, 1967

(News item also appeared
in Rawlins Daily Times
and Casper Star-Tribune)

Pathfinder Area Gains Approval

Waterfowl hunting will again be permitted on certain portions of the Pathfinder National Wildlife Refuge, according to an announcement of the Laramie office of the U.S. Bureau of Sport Fisheries and Wildlife.

The open areas are on, or adjacent to, the Pathfinder Reservoir and lie south of the main portion of the refuge which encompasses the Sweetwater River Arm of the reservoir. These open areas consist of about 3,760 acres and are designated by signs as open to hunting.

Maps of the refuge are available from business establishments in Medicine Bow and Alcova, Wyoming, and from the office of the Refuge Manager, Pathfinder National Wildlife Refuge, P.O. Box 759, Laramie, Wyoming 82070.

The hunting season and bag limits are consistent with the waterfowl regulations set by the State for that portion of Wyoming in the Central Flyway.

*Casper Star-Tribune
October 5, 1967*

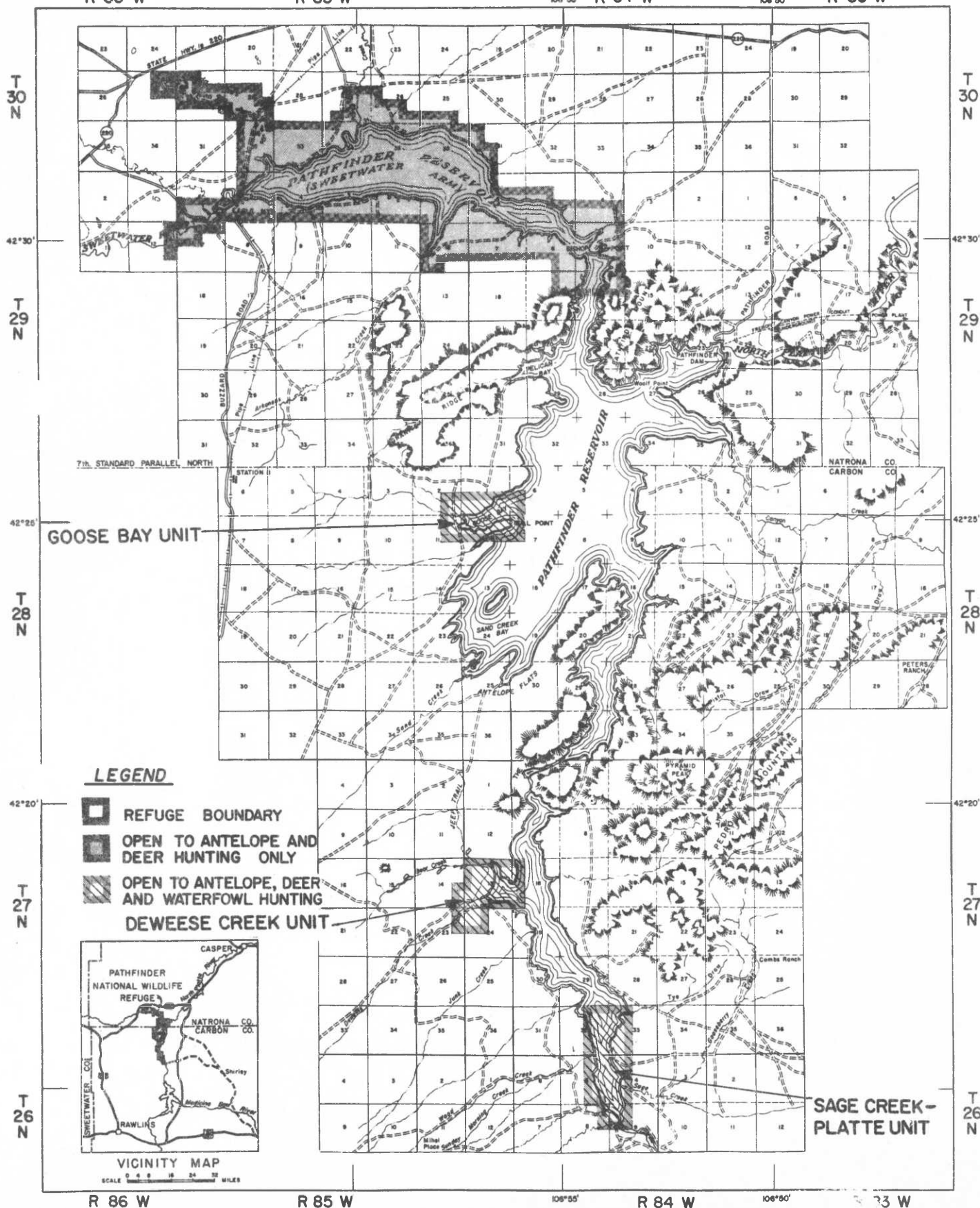
1967-68 Seasons

PATHFINDER NATIONAL WILDLIFE REFUGE

UNITED STATES
DEPARTMENT OF THE INTERIOR
R 86 W

CARBON AND NATRONA COUNTIES, WYOMING

FISH AND WILDLIFE SERVICE
BUREAU OF SPORT FISHERIES AND WILDLIFE
R 83 W



LEGEND

- REFUGE BOUNDARY
 - OPEN TO ANTELOPE AND DEER HUNTING ONLY
 - OPEN TO ANTELOPE, DEER AND WATERFOWL HUNTING
- DEWEES CREEK UNIT



VICINITY MAP
SCALE 0 8 16 24 32 MILES

COMPILED IN THE BRANCH OF ENGINEERING
FROM U.S.G.S. QUADRANGLES AND SURVEYS BY
U.S.F. & W.S.
REV. MARCH 1963

SIXTH PRINCIPAL MERIDIAN

Scale 0 40 80 160 240 320 400 CHAINS
0 1 2 3 4 5 MILES



TOWNSHIP
DIAGRAM

MEAN
DECLINATION
1960

NR Forms

Jan-April

3-1750
Form NR-1
(Rev. March 1953)

W A T E R F O W L

REFUGE Pathfinder

MONTHS OF January TO April, 1967

(1) Species	(2) Weeks of reporting period									
	1/1-7 1	1/8-14 2	1/15-21 3	1/22-28 4	1/29-2/4 5	2/5-11 6	2/12-18 7	2/19-25 8	2/26-3/4 9	3/5-11 10
Swans:										
Whistling										
Trumpeter										
Geese:										
Canada		Only infrequent visits were made to the					16			4
Cackling		Pathfinder Refuge during this period and no								
Brant		scheduled censuses were carried out. Duck use								
White-fronted		was thought to have been very limited due to								
Snow		low water and a late spring.					25			28
Blue										
Other										
Ducks:										
Mallard										
Black										
Gadwall										
Baldpate										
Pintail										
Green-winged teal										
Blue-winged teal										
Cinnamon teal										
Shoveler										
Wood										
Redhead										
Ring-necked										
Canvasback										
Scaup										
Goldeneye										26
Bufflehead										
Ruddy										
Other										
Total ducks							25			54

3-1751

Form NR-1A
(Aug. 1952)MIGRATORY BIRDS
(Other than Waterfowl)Refuge PathfinderMonths of January to April, 19 67

(1) Species	(2) First Seen		(3) Peak Concentration		(4) Last Seen		(5) Production			(6) Total
Common Name	Number	Date	Number	Inclusive Dates	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Use
I. <u>Water and Marsh Birds:</u> No notes for this period.										
II. <u>Shorebirds, Gulls and Terns:</u> No notes for this period.										

(over)

(1)	(2)	(3)	(4)	(5)	(6)
III. <u>Doves and Pigeons:</u> Mourning dove White-winged dove					
IV. <u>Predaceous Birds:</u> Golden eagle Duck hawk Horned owl Magpie Raven Crow Bald eagle (Notes incomplete for period.)	Present Present Present Present 2 3/10	2 2 5 2 5	Still present " " " " " " ?		240 240 600 240 300
Reported by <i>Le Moyne B. Marlatt</i> LeMoyne B. Marlatt, Refuge Mgr.					

INSTRUCTIONS (See Sec. 7532, Wildlife Refuges Field Manual)

- (1) **Species:** Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U. order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance. Groups: I. Water and Marsh Birds (Gaviiformes to Ciconiiformes and Gruiformes)
II. Shorebirds, Gulls and Terns (Charadriiformes)
III. Doves and Pigeons (Columbiformes)
IV. Predaceous Birds (Falconiformes, Strigiformes and predaceous Passeriformes)
- (2) **First Seen:** The first migration record for the species for the reporting period.
- (3) **Peak Numbers:** Estimated number and inclusive dates when peak population of the species occurred.
- (4) **Last Seen:** The last refuge record for the species during the season concerned.
- (5) **Production:** Estimated number of young produced based on observations and actual counts.
- (6) **Total:** Estimated species days use (average population X no. days present) of refuge during the reporting period.

3-1752

Form NR-2

(April 1946)

UPLAND GAME BIRDS

Refuge PathfinderMonths of January to April, 1967

(1) Species	(2) Density		(3) Young Produced		(4) Sex Ratio	(5) Removals			(6) Total	(7) Remarks
Common Name	Cover types, total acreage of habitat	Acres per Bird	Number broods obs.'v'd.	Estimated Total	Percentage	Hunting	For Re- stocking	For Research	Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
Sage grouse	Sagebrush flats and draws, and meadows-- 14,500 acres	145			100:100				100	Based on infrequent obser- vations and reports of State G&F personnel.

INSTRUCTIONS

Form NR-2 - UPLAND GAME BIRDS.*

- (1) SPECIES: Use correct common name.
- (2) DENSITY: Applies particularly to those species considered in removal programs (public hunts, etc.). Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.
- (3) YOUNG PRODUCED: Estimated number of young produced, based upon observations and actual counts in representative breeding habitat.
- (4) SEX RATIO: This column applies primarily to wild turkey, pheasants, etc. Include data on other species if available.
- (5) REMOVALS: Indicate total number in each category removed during the report period.
- (6) TOTAL: Estimated total number using the refuge during the report period. This may include resident birds plus those migrating into the refuge during certain seasons.
- (7) REMARKS: Indicate method used to determine population and area covered in survey. Also include other pertinent information not specifically requested.

* Only columns applicable to the period covered should be used.

3-1754
Form NR-4
(June 1945)

SMALL MAMMALS

Refuge Pathfinder Year ending April 30, 67

(1) Species	(2) Density		(3) Removals					(4) Disposition of Furs					(5) Total	
Common Name	Cover Types & Total Acreage of Habitat	Acres Per Animal	Hunting	Fur Harvest	Predator Control *	For Re- stocking	For Re- search	Share Trapping			Total Refuge Furs Shipped	Furs Donated	Furs Destroyed	Popula- tion
								Permit Number	Trappers Share	Refuge share				
Coyote	All refuge uplands-- approx. 14,500 A.	725												20
Bobcat	Rocky foothills, sage- brush hills & draws-- 2,000 A.	133												15
Badger	Meadows, draws, dry grasslands -6,000 A.	300												20
Striped skunk	Sagebrush flats& draws, marshy areas-- 2,000 A.	200												10
White-tailed jack- rabbit	All refuge uplands-- 14,500 A.	483												30
Desert cottontail	Sagebrush flats & draws, meadows & rocky foothills-- 2,000 A.	20												100
White-tailed prairie dog	Grasslands--4,000 A.	40												100
Muskrat	Rivers, creeks and ponds--1,300 A.	20												65
Beaver	-do-	325												4

* List removals by Predator Animal Hunter

* List removals by Predator Animal Hunter

REMARKS:

Le Moyne B. Marlatt
Reported by Le Moyne B. Marlatt

INSTRUCTIONS

Form NR-4 - SMALL MAMMALS (Include data on all species of importance in the management program; i. e., muskrats, beaver, coon, mink, coyote. Data on small rodents may be omitted except for estimated total population of each species considered in control operations.)

- (1) SPECIES: Use correct common name. Example: Striped skunk, spotted skunk, short-tailed weasel, gray squirrel, fox squirrel, white-tailed jackrabbit, etc. (Accepted common names in current use are found in the "Field Book of North American Mammals" by H. E. Anthony and the "Manual of the Vertebrate Animals of the Northeastern United States" by David Starr Jordan.)
- (2) DENSITY: Applies particularly to those species considered in removal programs. Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottom land hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.
- (3) REMOVALS: Indicate the total number under each category removed since April 30 of the previous year, including any taken on the refuge by Service Predatory Animal Hunter. Also show any removals not falling under headings listed.
- (4) DISPOSITION OF FUR: On share-trapped furs list the permit number, trapper's share, and refuge share. Indicate the number of pelts shipped to market, including furs taken by Service personnel. Total number of pelts of each species destroyed because of unprimeness or damaged condition, and furs donated to institutions or other agencies should be shown in the column provided.
- (5) TOTAL POPULATION: Estimated total population of each species reported on as of April 30.
- REMARKS: Indicate inventory method(s) used, size of sample area(s), introductions, and any other pertinent information not specifically requested.

May-Aug.

W A T E R F O W L

REFUGE Pathfinder

MONTHS OF May TO August, 19 67

(1) Species	(2) Weeks of reporting period									
	4/30-5/6	5/6-5/13	5/14-20	5/21-27	5/28-6/3	6/4-10	6/11-17	6/18-24	6/25-7/1	7/2-8
	1	2	3	4	5	6	7	8	9	10
Swans:										
Whistling										
Trumpeter										
Geese:										
Canada	30	30	30	30	30	30	60	60	60	70
Cackling										
Brant										
White-fronted										
Snow										
Blue										
Other										
Ducks:										
Mallard	100	100	75	75	75	75	150	320	275	200
Black										
Gadwall	60	60	50	50	60	60	70	75	75	75
Baldpate	20	20	20	20	20	20	20	20	12	12
Pintail	300	275	250	200	160	160	180	200	175	150
Green-winged teal	100	75	75	50	25	25	25	25	25	25
Blue-winged teal	10	10	15	15	15	15	15	30	25	20
Cinnamon teal	10	10	10	10	15	15	15	30	25	20
Shoveler	100	60	60	45	30	30	30	30	35	40
Wood										
Redhead	150	150	100	60	10	10	10	10	10	-
Ring-necked										
Canvasback										
Scaup	60	50	30	30	2	2	2	2	2	2
Goldeneye	20	20								
Bufflehead										
Ruddy										
Other C. Merganser	15	15	15	15	10	10	10	10	15	15
Total ducks	945	845	700	570	422	422	527	752	674	559

3-1750a
 Cont. NR-1
 (Rev. March 1953)

W A T E R F O W L
 (Continuation Sheet)

REFUGE Pathfinder MONTHS OF May TO August, 19 67

(1) Species	(2) Weeks of reporting period								(3) Estimated waterfowl days use	(4) Production Broods:Estimate seen : total	
	7/9-15 11	7/16-22 12	7/23-29 13	7/30-8/5 14	8/6-12 15	8/13-19 16	8/20-26 17	8/27-9/2 18			
Swans:											
Whistling											
Trumpeter											
Geese:											
Canada	70	70	100	115	115	115	75	75	8,155	2	30
Cackling											
Brant											
White-fronted											
Snow											
Blue											
Other											
Ducks:											
Mallard	125	110	110	120	120	130	150	1400	18,970	11	90
Black											
Gadwall	85	85	85	100	100	100	130	130	10,150	3	35
Baldpate	12	12	30	30	100	100	180	150	5,586		
Pintail	150	200	200	200	200	200	325	685	29,170	24	230
Green-winged teal	25	60	60	80	80	100	125	75	7,385	4	35
Blue-winged teal	5	16	16	25	25	50	60	50	2,919	2	20
Cinnamon teal	6	6	6	6					1,288		
Shoveler	40	40	40	50	50	60	60	60	6,020	5	50
Wood											
Redhead					20	20	20	5	4,025		
Ring-necked											
Canvasback											
Scaup	2	3	3	3	2	2	2	2	1,407		
Goldeneye									280		
Bufflehead											
Ruddy							2	2	28		
Other C.Merganser	15	15	15	15	20	30	30	30	2,100	3	20
Total Ducks	465	547	565	629	717	792	1,084	1,589	89,628	52	480
Coot:	2	2	2	2	2	2	20	20	364		
				(over)							

	(5)	(6)	(7)	SUMMARY
	Total Days Use	Peak Number	Total Production	
Swans				Principal feeding areas Sweetwater Arm, Soda Lakes,
Geese	8,155	115	30	Goose Bay, Deweese Creek and North Platte River
Ducks	89,628	1,589	480	Principal nesting areas Soda Lakes; Sweetwater Arm;
Coots	364	20	-	some at Deweese Creek, Goose Bay, and Sage Creek.
				Reported by LeMoyne B. Marlatt, Refuge Manager

INSTRUCTIONS (See Secs. 7531 through 7534, Wildlife Refuges Field Manual)

- (1) Species: In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and national significance.
- (2) Weeks of Reporting period: Estimated average refuge populations.
- (3) Estimated Waterfowl Days Use: Average weekly populations x number of days present for each species.
- (4) Production: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.
- (5) Total Days Use: A summary of data recorded under (3).
- (6) Peak Number: Maximum number of waterfowl present on refuge during any census of reporting period.
- (7) Total Production: A summary of data recorded under (4).

Form NR-1A
(Aug. 1952)

MIGRATORY BIRDS
(Other than Waterfowl)

Refuge Pathfinder Months of May to August, 19 67

(1) Species	(2) First Seen		(3) Peak Concentration		(4) Last Seen		(5) Production			(6) Total
Common Name	Number	Date	Number	Inclusive Dates	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Use
I. Water and Marsh Birds:										
Eared grebe	7	7/21	7	7/21	3	8/31				100
Western grebe	4	6/22	7	7/12	Still present					1,200
D-crested cormorant	1	7/12	11	8/16	"	"				600
Great blue heron	4	6/22	19	8/31	"	"				1,200
White-faced ibis	2	5/29	2	5/29	2	5/29				14
First time recorded on refuge. Observed at Soda Lakes.										
II. Shorebirds, Gulls and Terns:										
Killdeer	Present		125	6/22	Still present				75	8,000
Common snipe	1	8/22	1	8/22-31	"	"				30
Long-billed curlew	5	6/22	6		"	"				720
Spotted sandpiper	Present		12	7/21	"	"				800
Willet	Present		20	5/29	"	"			4	1,560
Long-billed dowitcher	2	7/21	11	8/31	"	"				360
American avocet	Present		750	8/22	"	"			200	33,000
Wilson's phalarope	Present		2,000	8/22	"	"			200	84,000
California gull	Present		150	8/22	"	"				7,200
Ring-billed gull	Present		14	8/31	"	"				480
Franklin's gull	10	8/22	10	8/22	10	8/22				140
Caspian tern	9	8/31	9	8/31	9	8/31				70
(over)										

(1)	(2)	(3)	(4)	(5)	(6)
III. <u>Doves and Pigeons:</u>					
Mourning dove	Present	50	Still present		20 1,200
White-winged dove					
IV. <u>Predaceous Birds:</u>					
Golden eagle	Present	6	" "		240
* Duck hawk Gyrfalcon		1 8/31	" "		7
Horned owl	Present	6	" "	10	720
Magpie	Present	20	" "	20	1,200
Raven					
Crow	Present	10	" "		600
Bald eagle	Present	2	" "		120
Burrowing Owl	Present	8 7/13	" "	4	360
Short-eared owl	Present	4	" "		480
Turkey vulture	Present	6	" "		240
Swainson's hawk	Present	6	" "	6	960
Ferruginous hawk	Present	2	" "		60
Marsh hawk	Present	12	" "	12	960
Sparrow hawk	Present	2	" "		60
Prairie falcon	(?) (?)	1	" "		14
Reported by LeMoyne B. Marlatt					

INSTRUCTIONS (See Sec. 7532, Wildlife Refuges Field Manual)

(1) Species:

Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U. order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance. Groups: I. Water and Marsh Birds (Gaviiformes to Ciconiiformes and Gruiformes)

* First time recorded on refuge.

II. Shorebirds, Gulls and Terns (Charadriiformes)

III. Doves and Pigeons (Columbiformes)

IV. Predaceous Birds (Falconiformes, Strigiformes and predaceous Passeriformes)

(2) First Seen: The first migration record for the species for the reporting period.

(3) Peak Numbers: Estimated number and inclusive dates when peak population of the species occurred.

(4) Last Seen: The last refuge record for the species during the season concerned.

(5) Production: Estimated number of young produced based on observations and actual counts.

(6) Total: Estimated species days use (average population X no. days present) of refuge during the reporting period.

3-1750b
Form NR-1B
(Rev. Nov. 1957)

UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
BUREAU OF SPORT FISHERIES AND WILDLIFE

WATERFOWL UTILIZATION OF REFUGE HABITAT

Refuge Pathfinder For 12-month period ending August 31, 1967

Reported by LeMoyne B. Marlatt Title Refuge Manager

(1)	(2)		(3)	(4)	(5)
Area or Unit	Habitat			Breeding	
Designation	Type Acreage		Use-days	Population	Production
Sweetwater Unit	Crops		Ducks 91,000	50	159
	Upland 9,947		Geese 15,000	4	14
	Marsh 540		Swans		
	Water 1,260		Coots 300		
	Total 11,747		Total 106,300	54	173
Soda Lakes Unit	Crops		Ducks 70,829	100	200
	Upland 380		Geese 5,000	4	11
	Marsh 420		Swans		
	Water 420		Coots 50		
	Total 1,220		Total 75,879	104	211
Goose Bay Unit	Crops		Ducks 10,000	16	30
	Upland 940		Geese 9,000		
	Marsh 40		Swans		
	Water 160		Coots		
	Total 1,140		Total 19,000	16	30
Deweese Creek Unit	Crops		Ducks 16,000	30	85
	Upland 1,000		Geese 1,000	2	5
	Marsh 40		Swans 35		
	Water 100		Coots 14		
	Total 1,140		Total 17,049	32	90
Sage Creek Unit	Crops		Ducks 12,000	4	6
	Upland 1,380		Geese 2,515		
	Marsh 20		Swans		
	Water 160		Coots		
	Total 1,560		Total 14,515	4	6
REFUGE TOTALS	Crops		Ducks 199,829	200	480
	Upland 13,647		Geese 32,515	10	30
	Marsh 1,060		Swans 35		
	Water 2,100		Coots 364		
	Total 16,807		Total 232,743	210	510
	Crops		Ducks		
	Upland		Geese		
	Marsh		Swans		
	Water		Coots		
	Total		Total		

(over)

INSTRUCTIONS

All tabulated information should be based on the best available techniques for obtaining these data. Estimates having no foundation in fact must be omitted. Refuge grand totals for all categories should be provided in the spaces below the last unit tabulation. Additional forms should be used if the number of units reported upon exceeds the capacity of one page. This report embraces the preceding 12-month period, NOT the fiscal or calendar year, and is submitted annually with the May-August Narrative Report.

- (1) Area or Unit: A geographical unit which, because of size, terrain characteristics, habitat type and current or anticipated management practices, may be considered an entity apart from other areas in the refuge census pattern. The combined estimated acreages of all units should equal the total refuge area. A detailed map and accompanying verbal description of the habitat types of each unit should be forwarded with the initial report for each refuge, and thereafter need only be submitted to report changes in unit boundaries or their descriptions.
- (2) Habitat: Crops include all cultivated croplands such as cereals and green forage, planted food patches and agricultural row crops; upland is all uncultivated terrain lying above the plant communities requiring seasonal submergence or a completely saturated soil condition a part of each year, and includes lands whose temporary flooding facilitates use of non-aquatic type foods; marsh extends from the upland community to, but not including, the water type and consists of the relatively stable marginal or shallow-growing emergent vegetation type, including wet meadow and deep marsh; and in the water category are all other water areas inundated most or all of the growing season and extending from the deeper edge of the marsh zone to strictly open-water, embracing such habitat as shallow playa lakes, deep lakes and reservoirs, true shrub and tree swamps, open flowing water and maritime bays, sounds and estuaries. Acreage estimates for all four types should be computed and kept as accurate as possible through reference to available maps supplemented by periodic field observations. The sum of these estimates should equal the area of the entire unit.
- (3) Use-days: Use-days is computed by multiplying weekly waterfowl population figures by seven, and should agree with information reported on Form NR-1.
- (4) Breeding
Population: An estimate of the total breeding population of each category of birds for each area or unit.
- (5) Production: Estimated total number of young raised to flight age.

3-1752
Form NR-2
(April 1946)

UPLAND GAME BIRDS

Refuge Pathfinder Months of May to August, 19 67

(1) Species	(2) Density		(3) Young Produced	(4) Sex Ratio	(5) Removals	(6) Total	(7) Remarks
Common Name	Cover types, total acreage of habitat	Acres per Bird	Number broods obs'd. Estimated Total	Percentage	Hunting For Re- stocking For Research	Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
Sage grouse	Sage brush flats, draws, and meadows-- 750 acres	7.5	- 45	100:100	- - -	100	Three-day hunting season began August 26 in Carbon and Natrona County areas surrounding the refuge-- three-bag and three-bird possession limit. This was a season more restric- tive than usual since sage grouse production was very poor this year. Hunting pressure adjacent to refuge was thought to be moderate.

INSTRUCTIONS

Form NR-2 - UPLAND GAME BIRDS.*

- (1) SPECIES: Use correct common name.
- (2) DENSITY: Applies particularly to those species considered in removal programs (public hunts, etc.). Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.
- (3) YOUNG PRODUCED: Estimated number of young produced, based upon observations and actual counts in representative breeding habitat.
- (4) SEX RATIO: This column applies primarily to wild turkey, pheasants, etc. Include data on other species if available.
- (5) REMOVALS: Indicate total number in each category removed during the report period.
- (6) TOTAL: Estimated total number using the refuge during the report period. This may include resident birds plus those migrating into the refuge during certain seasons.
- (7) REMARKS: Indicate method used to determine population and area covered in survey. Also include other pertinent information not specifically requested.

* Only columns applicable to the period covered should be used.

Sept-Dec.

W A T E R F O W L

REFUGE Pathfinder

MONTHS OF September TO December, 19 67

(1) Species	(2) Weeks of reporting period									
	9/3-9 1	9/10-16 2	9/17-23 3	9/24-30 4	10/1-7 5	10/8-14 6	10/15-21 7	10/22-28 8	10/31-11/4 9	11/5-11 10
Swans:										
Whistling										
Trumpeter										
Geese:	*	*	*		*		*	*		*
Canada	75	75	75	75	75	90	130	160	160	160
Cackling										
Brant										
White-fronted										
Snow										
Blue										
Other										
Ducks:	*	*	*		*		*	*		*
Mallard	300	150	150	120	180	250	250	250	250	250
Black										
Gadwall	100	80	50	20	20	40	40	40	20	20
Baldpate	120	70	30	10	20	30	30	20	10	10
Pintail	650	550	150	40	250	520	520	100		
Green-winged teal	75	75	100	150	150	200	150	100	10	10
Blue-winged teal	30	10								
Cinnamon teal										
Shoveler	75	100	130	160	250	320	200	75	30	20
Wood										
Redhead	5	5	5	10	10	20	20	20	15	15
Ring-necked										
Canvasback			1	1	1					
L.Scaup	2	2	2		30	50	30	10	6	6
C.Goldeneye			10	10	10	20	30	30	30	30
Bufflehead				6	6	6	10	10	12	12
Ruddy										
Other C.Merganser	30	30	30	30	50	120	75	30	25	25
TOTAL DUCKS	1,387	1,072	658	557	977	1,576	1,355	685	408	398
Coot:	20	20	30	35	100	230	100	75	50	50

3 -1750a

Cont. NR-1

(Rev. March 1953)

W A T E R F O W L
(Continuation Sheet)

REFUGE PathfinderMONTHS OF September TO December, 19 67

(1) Species	(2) Weeks of reporting period								(3) Estimated waterfowl days use	(4) Production : Broods: Estimated : seen : total	
	11/12-18: 11	19-25 12	26-12/2: 13	12/3-9 14	12/10-16: 15	12/17-23 16	12/24-30 17	18			
Swans:											
Whistling											
Trumpeter											
Geese:	*	*	*		*	*	*				
Canada	160	160	160	160	160	160	160		15,365		
Cackling											
Brant											
White-fronted											
Snow											
Blue											
Other											
Ducks:	*	*	*		*	*	*				
Mallard	200	150	100	75	75	100	150		21,000		
Black											
Gadwall	10	10							3,150		
Baldpate	10	10							2,590		
Pintail									19,460		
Green-winged teal	10	10							7,280		
Blue-winged teal									280		
Cinnamon teal											
Shoveler	10								9,590		
Wood											
Redhead	10								945		
Ring-necked											
Canvasback									21		
L. Scaup	10								1,036		
C. Goldeneye	30	30	30	30	30	50	100		3,290		
Bufflehead	10								504		
Ruddy											
Other C. Merganser	25	25	25	25	25	25	25		4,340		
TOTAL DUCKS	325	235	155	130	130	175	275		73,486		
Coot:	10								5,040		
				(over)							

	(5)	(6)	(7)	SUMMARY
	Total Days Use	Peak Number	Total Production	
Swans	:	:	:	Principal feeding areas Waters of Soda Lakes and shore
Geese	15,365	160	:	along Sweetwater and North Platte Rivers and Goose Bay.
Ducks	73,486	1,576	:	Principal nesting areas
Coots	5,040	230	:	
				Reported by LeMoyne B. Marlatt, Refuge Manager

INSTRUCTIONS (See Secs. 7531 through 7534, Wildlife Refuges Field Manual)

- (1) Species: In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and national significance.
- (2) Weeks of Reporting Period: Estimated average refuge populations.
- (3) Estimated Waterfowl Days Use: Average weekly populations x number of days present for each species.
- (4) Production: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.
- (5) Total Days Use: A summary of data recorded under (3).
- (6) Peak Number: Maximum number of waterfowl present on refuge during any census of reporting period.
- (7) Total Production: A summary of data recorded under (4).

Form NR-1A
(Aug. 1952)

Refuge Pathfinder Months of September to December, 1967

(1) Species	(2) First Seen		(3) Peak Concentration		(4) Last Seen		(5) Production			(6) Total
Common Name	Number	Date	Number	Inclusive Dates	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Use
I. <u>Water and Marsh Birds:</u>										
Eared grebe	Present		26	10/13	6	10/18				1,200
Western grebe	"		20	10/13	20	10/13				1,200
Pied-billed grebe	4	9/26	6	10/13	6	10/13				480
White pelican	4	9/29	4	9/29	4	9/29				120
Double-crested cormorant	Present		1	9/29	1	9/29				30
Great blue heron	"		2	10/05	2	10/05				60
II. <u>Shorebirds, Gulls and Terns:</u>										
Killdeer	Present		50		?	10/05				1,000
American avocet	"		56	9/26	14	10/18				2,000
Wilson's phalarope	"		35	9/26	4	10/13				1,100
California gull	"		50	10/13	4	11/03				2,100
Ring-billed gull	"		40	10/05	40	10/05				1,800
Franklin's gull	20	9/26	20	9/26	20	9/26				200

(over)

(1)	(2)	(3)	(4)	(5)	(6)
III. <u>Doves and Pigeons:</u>					
Mourning dove	Present	30	? ?		900
White-winged dove					
IV. <u>Predaceous Birds:</u>					
Golden eagle	Present	2	Still present		240
Duck hawk					
Horned owl	Present	8	Still present		960
Magpie	Present	30 9/26	30 9/26		1,125
Raven					
Crow					
Bald eagle	Present	2	Still present		100
Sharp-shinned hawk	1 10/28	1 10/18	1 10/18		14
Rough-legged hawk	2 10/18	4 11/03	Still present		240
Marsh hawk	Present	8	4 11/03		540
Reported by LeMoyne B. Marlatt, Refuge Mgr.					

INSTRUCTIONS (See Sec. 7532, Wildlife Refuges Field Manual)

- (1) Species: Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U. order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance. Groups: I. Water and Marsh Birds (Gaviiformes to Ciconiiformes and Gruiformes)
 II. Shorebirds, Gulls and Terns (Charadriiformes)
 III. Doves and Pigeons (Columbiformes)
 IV. Predaceous Birds (Falconiformes, Strigiformes and predaceous Passeriformes)
- (2) First Seen: The first migration record for the species for the reporting period.
- (3) Peak Numbers: Estimated number and inclusive dates when peak population of the species occurred.
- (4) Last Seen: The last refuge record for the species during the season concerned.
- (5) Production: Estimated number of young produced based on observations and actual counts.
- (6) Total: Estimated species days use (average population X no. days present) of refuge during the reporting period.

3-1750c
Form NR-1C
(Sept. 1960)

WATERFOWL HUNTER KILL SURVEY

Refuge Pathfinder

Year 1967

(1) Weeks of Hunting	(2) No. Hunters Checked	(3) Hunter Hours	(4) Waterfowl Species and Nos. of Each Bagged	(5) Total Bagged	(6) Crippling Loss	(7) Total Kill	(8) Est. No. of Hunters	(9) Est. Total Kill
11	6	600	Canada goose Mallard * C. Goldeneye * C. Merganser * Green-winged teal * Gadwall * American widgeon * Blue-winged teal * * This is an estimate of the decreasing order in which ducks were part of the bag. Since only two days were actually devoted to checking waterfowl hunters, only a small number of hunter's bags were sampled. Not enough information was obtained to attempt to estimate the numbers of each species taken.				100	20 geese 75 ducks

(over)

INSTRUCTIONS

- (1) The first week of hunting begins with opening day and ends at the close of hunting 6 days later. Successive weeks follow the same pattern.
- (2) The goal is to survey a minimum of 25 percent of refuge hunters each week and to record data only from those who have completed their day's hunting. This information should be collected during each day of the week and in each area hunted in relative proportion to the hunter effort expended. When the 25 percent goal cannot be achieved, particular care should be taken to collect representative data.
- (3) Record the total number of hours the hunters spent hunting on the refuge.
- (4) List waterfowl species in decreasing order of numbers bagged. Sample entry: Mallard (61), Pintail (36), Redhead (16), Gadwall (11), Widgeon (6), Coot (4), Canada Goose (3), Green-winged Teal (1).
- (5) Record total numbers of waterfowl bagged.
- (6) Record total numbers of waterfowl reported knocked down but not recovered.
- (7) Total of Columns 5 and 6.
- (8) Estimate the total number of hunters who hunted on the refuge during the week, including hunters checked (Column 2).
- (9) Kill sample projected to 100 percent. $\text{Column 9} = \frac{\text{Column 8}}{\text{Column 2}} \times \text{Column 7}.$

3-1752
Form NR-2
(April 1946)

UPLAND GAME BIRDS

Refuge Pathfinder

Months of September to December, 1967

(1) Species	(2) Density	(3) Young Produced	(4) Sex Ratio	(5) Removals			(6) Total	(7) Remarks
Common Name	Cover types, total acreage of habitat	Acres per Bird	Estimated Total	Hunting	For Re- stocking	For Research	Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
Sage grouse	Sagebrush flats, draws, & meadows - 750 acres	7.5	100:100				100	Some utilization by hunters when birds move off refuge.

INSTRUCTIONS

Form NR-2 - UPLAND GAME BIRDS.*

- | | |
|---------------------|--|
| (1) SPECIES: | Use correct common name. |
| (2) DENSITY: | Applies particularly to those species considered in removal programs (public hunts, etc.). Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks. |
| (3) YOUNG PRODUCED: | Estimated number of young produced, based upon observations and actual counts in representative breeding habitat. |
| (4) SEX RATIO: | This column applies primarily to wild turkey, pheasants, etc. Include data on other species if available. |
| (5) REMOVALS: | Indicate total number in each category removed during the report period. |
| (6) TOTAL: | Estimated total number using the refuge during the report period. This may include resident birds plus those migrating into the refuge during certain seasons. |
| (7) REMARKS: | Indicate method used to determine population and area covered in survey. Also include other pertinent information not specifically requested. |

* Only columns applicable to the period covered should be used.

BIG GAME

Refuge Pathfinder

Calendar Year 1967

(1) Species Common Name	(2) Density Cover Types, Total Acreage of Habitat	(3) Young Produced Number	(4) Removals				(5) Losses			(6) Introductions		(7) Estimated Total Refuge Population		(8) Sex Ratio
			Hunting	For Re- stocking	Sold	For Research	Predation	Disease	Winter Loss	Number	Source	At Period of Greatest Use	As of Dec. 31	
Antelope	Sagebrush flats and draws, hillsides, meadows, and shoreline of reservoir and rivers - 12,000 acres	150										1,000	850	20:100
Mule deer	Rocky hillsides, sagebrush draws, and meadows - 1,500 acres	5										75	70	30:100

Remarks: Further decline in antelope numbers noted this year--probably due to severe late spring snow storms; also noted elsewhere in State of Wyoming and seasons were shortened in many areas.

Reported by LeMoyne B. Marlatt

INSTRUCTIONS

Form NR-3 - BIG GAME

- (1) SPECIES: Use correct common name; i.e., Mule deer, black-tailed deer, white-tailed deer. It is unnecessary to indicate sub-species such as northern or Louisiana white-tailed deer.
- (2) DENSITY: Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.
- (3) YOUNG PRODUCED: Estimated total number of young produced on refuge.
- (4) REMOVALS: Indicate total number in each category removed during the year.
- (5) LOSSES: On the basis of known records or reliable estimates indicate total losses in each category during the year.
- (6) INTRODUCTIONS: Indicate the number and refuge or agency from which stock was secured.
- (7) TOTAL REFUGE POPULATION: Give the estimated population of each species on the refuge at period of its greatest abundance and also as of Dec. 31.
- (8) SEX RATIO: Indicate the percentage of males and females of each species as determined from field observations or through removals.

DISEASE

Refuge Pathfinder

Year 19 67

Botulism None noted

Lead Poisoning or other Disease None noted

Period of outbreak _____

Period of heaviest losses _____

Losses:

	Actual Count	Estimated
(a) Waterfowl	_____	_____
(b) Shorebirds	_____	_____
(c) Other	_____	_____

Number Hospitalized	No. Recovered	% Recovered
(a) Waterfowl	_____	_____
(b) Shorebirds	_____	_____
(c) Other	_____	_____

Areas affected (location and approximate acreage) _____

Water conditions (average depth of water in sickness areas, reflooding of exposed flats, etc.) _____

Condition of vegetation and invertebrate life _____

Remarks _____

Kind of disease _____

Species affected _____

Number Affected Species	Actual Count	Estimated
_____	_____	_____
_____	_____	_____
_____	_____	_____

Number Recovered _____

Number lost _____

Source of infection _____

Water conditions _____

Food conditions _____

Remarks _____

PUBLIC RELATIONS
(See Instructions on Reverse Side)

Refuge PathfinderCalendar Year 1967

1. Visits

a. Hunting 2,600 b. Fishing 4,000 c. Miscellaneous 3,620 d. TOTAL VISITS 10,220

1a. Hunting (on refuge lands)

TYPE	HUNTERS	ACRES	MANAGED BY
Waterfowl	100	3,840	
Upland Game			
Big Game	2,500	16,000	
Other			

Number of permanent blinds NoneMan-days of bow hunting included above 10

Estimated man-days of hunting on lands adjacent to
refuge 12,000

1b. Fishing (area open to fishing on refuge lands)

TYPE OF AREA	ACRES	MILES
Ponds or Lakes	400	
Streams and Shores		12.5

1c. Miscellaneous Visits

Recreation 3,000 Official 120Economic Use 500 Industrial _____

2. Refuge Participation (groups)

TYPE OF ORGANIZATION	NO. OF GROUPS	NUMBER IN GROUPS	NO. OF GROUPS	NUMBER IN GROUPS
Sportsmen Clubs				
Bird and Garden Clubs				
Schools				
Service Clubs				
Youth Groups				
Professional-Scientific				
Religious Groups				
State or Federal Govt.				
Other				

3. Other Activities

TYPE	NUMBER	TYPE	NUMBER
Press Releases		Radio Presentations	
Newspapers (P.R.'s sent to)	4	Exhibits	
TV Presentations	18	Est. Exhibit Viewers	

INSTRUCTIONS

Item 1: Total of a, b, and c, equal d.

"Visit" - definition. Any person who is on refuge lands or waters during a day or part thereof for the purpose of: hunting, fishing, bird-watching, recreation, business or economic use, official visit, or similar interest. INCLUDE - those who stop within the refuge while traveling on a public highway because of an interest in the area. EXCLUDE - persons engaged in oil or other industry not directly related to the refuge, persons using refuge as most direct route or principal avenue of traffic, and those boating on navigable rivers or the Intercoastal Canal, unless they stop to observe wildlife on the refuge.

Computing visits. Where actual counts are impractical, "sampling" is used with midweek and week-end samples varied by season or weather. A conversion factor of 3.5 (of passengers per car) is used when accurate figures are not available. Each refuge will develop a conversion factor for boats based on range of usage. Count a camper once for each 24-hour period or fraction thereof.

Item 1a: Acres - of refuge open for each type of hunting.

Managed hunts require check in and out of hunters, issuance of permits, or assignment of blinds.

Other - INCLUDE crow, fox, and similar hunting.

Lands adjacent to refuge. Normally considered within 1 mile or less of boundary, unless established sampling procedures cover a wider area. For big game hunting, the distance may be greater.

Item 1b: Acres of streams open to fishing, if practical; otherwise just miles open. Information on "shores" is primarily for coastal fishing.

Item 1c: Recreation. INCLUDE photography, observing wildlife, picnicking, swimming, boating, camping, visitor center use, tours, etc. TOTAL Recreation, Official, and Economic Use visits under Item 1.

Industrial. INCLUDE persons engaged in industry, i.e., oil industry or factories. EXCLUDE these from Item 1.

Item 2: INCLUDE the "On Refuge" groups in Items 1c and 1. In "Off Refuge" column include only those group meetings in which refuge employees actually participate. EXCLUDE these from Items 1c and 1.

Item 3: Exhibits - INCLUDE displays, fairs, parades, and exhibits OFF the refuge; EXCLUDE those ON.

Refuge Pathfinder Year 19 67

Collections and Receipts (Seeds, rootstocks, trees, shrubs)							Plantings (Marsh - Aquatic - Upland)						
Species	Amount (Lbs., bus., etc.)	(2) C or R	Date	Method or Source	Cost	(3) Total Amount on Hand	Location of Area Planted	Rate of Seeding or Planting	Amount Planted (Acres or Yards of Shoreline)	Amount and Nature of Propagules	Date	Survival	Cause of Loss
None													

- (1) Report agronomic farm crops on Form NR-8
(2) C = Collections and R = Receipts
(3) Use "S" to denote surplus

Total acreage planted:

Marsh and aquatic _____
Hedgerows, cover patches _____
Food strips, food patches _____
Forest plantings _____

Remarks: _____

REFUGE GRAIN REPORT

Refuge Pathfinder

Months of January through December, 19567

[illegible]

(8) Indicate shipping or collection points _____

(9) Grain is stored at _____

(10) Remarks _____

*See instructions on back.

REFUGE GRAIN REPORT

This report should cover all grain on hand, received, or disposed of, during the period covered by this narrative report.

Report all grain in bushels. For the purpose of this report the following approximate weights of grain shall be considered equivalent to a bushel: Corn (shelled)—55 lb., corn (ear)—70 lb., wheat—60 lb., barley—50 lb., rye—55 lb., oats—30 lb., soy beans—60 lb., millet—50 lb., cowpeas—60 lb., and mixed—50 lb. In computing volume of granaries, multiply the cubic contents (cu. ft.) by 0.8 bushels.

- (1) List each type of grain separately and specifically, as flint corn, yellow dent corn, square deal hybrid corn, garnet wheat, red May wheat, durum wheat, spring wheat, proso millet, combine milo, new era cowpeas, mikado soy beans, etc. Mere listing as corn, wheat, and soybeans will not suffice, as specific details are necessary in considering transfer of seed supplies to other refuges. Include only domestic grains; aquatic and other seeds will be listed on NR-9.
- (3) Report all grain received during period from all sources, such as transfer, share cropping, or harvest from food patches.
- (4) A total of columns 2 and 3.
- (6) Column 4 less column 5.
- (7) This is a proposed break-down by varieties of grain listed in column 6. Indicate if grain is suitable for seeding new crops.
- (8) Nearest railroad station for shipping and receiving.
- (9) Where stored on refuge: "Headquarters granary," etc.
- (10) Indicate here the source of grain shipped in, destination of grain transferred, data on condition of grain, unusual uses proposed.

ANNUAL REPORT OF PESTICIDE APPLICATION

Proposal Number

Reporting Year

1967

INSTRUCTIONS: Wildlife Refuges Manual, secs. 3252d, 3394b and 3395.

Date(s) of Application	List of Target Pest(s)	Location of Area Treated	Total Acres Treated	Chemical(s) Used	Total Amount of Chemical Applied	Application Rate	Carrier and Rate	Method of Application
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
None								

10. Summary of results (continue on reverse side, if necessary)